complications are rare. Major textbooks and specialised books on osteoporosis either do not mention spinal cord compression as a complication of senile osteoporosis¹⁻³ or state that it is rare or does not occur.^{4,6} Thus one book states, "Nerve root compression is rare and spinal cord damage does not occur even in the presence of severe deformity"; another that, "Spinal cord compression does not occur and classical root pain is atypical"; while another does not completely exclude the possibility of paraplegia in stating that, "Radiation of pain down one leg is uncommon and symptoms or signs of spinal cord compression are very rare."⁴

There was both clinical and radiological support for the diagnosis of metastatic bone disease in both of our patients, with no other differential diagnosis being considered to be likely. Necropsy was expected to confirm this, but pathological and histological examination showed only osteoporosis in each case. It is interesting that both patients were men as the condition is rarer in men, but we cannot propose any explanation for this other than chance.

These two cases should alert physicians to the possibility of

osteoporotic vertebral collapse as a cause of spinal cord compression and encourage its mention in future editions of the relevant textbooks.

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Tuberculous spondylitis in the elderly: a potential diagnostic pitfall

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Despite an overall decrease in the incidence of tuberculosis within the United Kingdom infection with *Mycobacterium tuberculosis* remains an important cause of disease in the Asian immigrant and elderly white population and may be overlooked.¹ We describe two cases of tuberculous spondylitis in elderly patients that were attributed to malignant disease.

Case 1

A 76 year old retired pottery worker presented with a two month history of weight loss and low back pain. He had been investigated for possible pulmonary tuberculosis at the age of 30 and was receiving a pneumoconiosis pension because he had silicosis. Examination was unremarkable. Investigations showed iron deficiency anaemia and a raised erythrocyte sedimentation rate. Acid phosphatase activity, immunoglobulin concentrations, and results of a barium enema were normal. An x ray film of the thoracic spine showed partial collapse of the 12th thoracic vertebra, and a radioisotope bone scan showed increased uptake over the same site. Osteoporosis was diagnosed, and he was treated with a spinal support, analgesia, and oral iron.

He returned four months later complaining of a sudden increase in back pain associated with leg weakness, paraesthesia, and incontinence. On examination he had a lower thoracic gibbus and signs of spinal cord compression with a sensory level at L1 and paraplegia. An x ray film showed collapse of the 11th and 12th thoracic vertebrae with loss of the disc space (fig 1). A presumptive diagnosis of metastatic disease was made, and he was referred for radiotherapy but died before treatment was started. Postmortem examination showed tuberculous disease of the spine with an associated miliary infection.

Back pain and vertebral collapse in the elderly may indicate tuberculous spondylitis

Case 2

An 83 year old man underwent routine chest radiography before trans-urethral prostatectomy for benign prostatic hypertrophy. He was receiving a 40% pension because he had coal workers' pneumoconiosis. The x ray film showed a right hilar mass suggesting an underlying bronchial carcinoma. One month later he complained of back pain and was found to be noticeably tender over the lumbar spine. x Ray films showed collapse of the second and third lumbar vertebrae with anterior displacement of the aorta. He began a course of palliative radiotherapy for presumed metastatic disease secondary to a primary bronchial carcinoma, but further x ray film and computed tomography showed rapid destruction of the L2-3 disc and adjacent vertebral bodies, which suggested an infective rather than a neoplastic process (fig 2). Numerous biopsy specimens of the psoas area and lumbar spine were obtained. Coagulase negative staphylococcus was isolated from one culture, and he was treated with ampicillin. Tuberculous spondylitis was finally diagnosed when tubercle bacilli were isolated from culture of sputum. Antituberculous chemotherapy was started, and he subsequently made a good recovery.

Discussion

Tuberculous spondylitis accounts for 6% of all new cases of extrapulmonary tuberculosis notified each year within England and Wales.² In the elderly population most cases occur after reactivation of dormant foci in the lower thoracic, lumbar, and lumbosacral region; almost invariably adjacent vertebrae are affected. The most common form of presentation is pain over the affected vertebrae of a few weeks' to three years' duration, often associated with malaise, fever, and weight loss.³ Pressure on the spinal cord or nerve roots secondary to vertebral collapse or subluxation, or the presence of granulomatous masses or extradural abscesses, may produce a

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variety of neurological symptoms, leading in the most severe cases to "Pott's paraplegia," as occurred in case 1. Early changes in x ray films include radiolucency of vertebral bodies and loss of bony cortex with subsequent vertebral collapse characteristically producing anterior wedging and a gibbus. Infection destroys the disc space and may spread along the anterior and longitudinal ligaments to produce scalloping on the margins of the vertebral bodies. Paravertebral abscesses are common and may calcify.⁴ Tracking of tuberculous infection along fascial planes may lead to cold abscesses and sinuses. Such soft tissue masses, though difficult to identify in plain radiographs, may be easily identifiable in computed tomograms.⁴

FIG 1—x Ray film of thoracolumbar spine (case 1) showing collapse of 11th and 12th thoracic vertebrae with anterior scalloping, loss of disc space, and forward displacement of aorta.

The combination of back pain and vertebral collapse in elderly patients is common. The main differential diagnoses include osteoporosis, malignant disease, and, less commonly, infection. Radiological features that help differentiate these conditions include preservation of the bony cortex in osteoporosis, destruction of the disc space with infection, and loss of pedicles in malignant disease. Paravertebral soft tissue shadows and associated calcification are uncommon in malignant disease of the spine and if present suggest underlying infection. A technetium radioisotope scan may show increased uptake in osteoporotic fractures, infection, or malignant disease and is not therefore diagnostic, although multiple hot spots throughout the skeleton suggest malignant disease. In adults pyogenic infection may present an insidious clinical picture

similar to that observed with tuberculosis, and although vertebral pyogenic infection may occur after prostatic surgery, the coagulase negative staphylococcus isolated in case 2 was almost certainly a contaminant. Positive culture or histological confirmation has been reported in 73-95% of bone biopsy specimens or abscess material obtained from cases of tuberculous spondylitis.³

All patients with spinal tuberculosis should receive antituberculous chemotherapy similar to that currently recommended for pulmonary disease, although the period for maintenance treatment should be prolonged to 12-18 months.⁵ Removal of diseased tissue and bone grafting may be indicated for cases that fail to respond to chemotherapy alone and selected cases with neurological complications.⁶

FIG 2—x Ray film of lumbar spine (case 2) showing bony destruction and anterior collapse of second and third lumbar vertebrae with loss of disc space.

These cases emphasise the importance of considering tuberculous spondylitis as a cause of back pain and vertebral collapse in the elderly. A history of tuberculosis, evidence of active disease in other organs, and characteristic radiological changes should be sought to ensure that this diagnosis is not overlooked.

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